Q (1)

(a) Find all values of z such that $\cosh z = 1 + i$

(b) Find an analytic function whose real part is $U(x, y) = x^3 y - y^3 x$.

(c) Evaluate   (i) $\oint_C \dfrac{\sin(\pi z^2)}{(z-1)^2(z-2)} dz$ where C is the circle $|z| = 3$

            (ii) $\oint_C \dfrac{\cosh(\frac{3}{z-1})}{(z-1)(z-3)} dz$ where C is the circle $|z| = 5$

Q (2)

(a) Define the convex fuzzy set and determine whether the following fuzzy sets are convex or

not $A = \int \dfrac{\mu_A(x)}{x}$, $\mu_A(x) = \begin{cases} 0 & x \leq 4 \\ \dfrac{1}{1+(x-4)^{-2}} & x > 4 \end{cases}$ then determine α -cut sets of the above set

for $\alpha = 0.5$ and $\alpha = 0.9$.

(b) A product with memberships represents, degree of high expensive $\mu_A(x)$, degree of
medium expensive $\mu_B(x)$ and degree of cheap expensive $\mu_c(x)$ .Us defuzzification
methods to find suitable price if its cheap degree is 0.2 , its medium degree is 0.5 and
high degree 0.7 where

With my best wishes

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